PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Akinari TODOROKI, Fumihito BAISHO

Application No.: New US Patent Application

Filed: January 17, 2002 Docket No.: 111687

For: FILTERING METHOD AND APPARATUS

PRELIMINARY AMENDMENT

Director of the U.S. Patent and Trademark Office
Washington, D. C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please replace claim 3, 5, 8, 11, 13 and 16 as follows:

3. (Amended) The filtering method according to claim 1, wherein at the third step, the processing method for generating the digital signal in the time domain is switched on the basis of the side information including the information regarding the decoding of the data block.

5. (Amended) The filtering method according to claim 1, wherein at the first step, the output data stream is acquired by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and C^{IV}_N is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m + \frac{1}{2}\right)\left(n + \frac{1}{2}\right)\pi}{N}\right], \quad 0 \le m, n \le N - 1$$

where N is the number of data contained in x.

8. (Amended) The filtering method according to claim 6, wherein at the first step, the output data stream is acquired by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{II} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and C^{II}_N is a DCT-II transformation matrix represented by the following expression,

$$\left[C_N^{II}\right]_{m,n} = \cos\left[\frac{m(2n + 1)\pi}{2N}\right], \quad 0 \le m, n \le N - 1$$

where N is the number of data contained in x.

11. (Amended) The filtering apparatus according to claim 9, wherein said digital signal output means switches the processing method for generating the digital signal in the time domain on the basis of the side information including the information regarding the decoding of the data block.

13. (Amended) The filtering apparatus according to claim 9, wherein said transformation means acquires the output data stream by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and $C^{IV}{}_N$ is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m + \frac{1}{2}\right)\left(n + \frac{1}{2}\right)\pi}{N}\right], \quad 0 \le m, n \le N - 1$$

where N is the number of data contained in x.

16. (Amended) The filtering apparatus according to claim 14, wherein said transformation means acquires the output data stream making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{II} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and $C^{II}{}_N$ is a DCT-II transformation matrix represented by the following expression,

$$\left[C_N^{II}\right]_{m,n} = \cos\left[\frac{m(2n + 1)\pi}{2N}\right], \quad 0 \le m, n \le N - 1$$

where N is the number of data contained in x.

REMARKS

Claims 1-16 are pending. By this Preliminary Amendment, claims 3, 5, 8, 11, 13 and 16 are amended to eliminate multiple dependencies. Prompt and favorable consideration on the merits is respectfully requested.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Respectfully submitted,

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Attached: APPENDIX

Date: January 17, 2002

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DEPOSIT ACCOUNT USE AUTHORIZATION
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APPENDIX

Changes to Claims:

The following are marked-up versions of the amended claims:

3. (Amended) The filtering method according to claim 1 ~~or 2~~, wherein at the third step, the processing method for generating the digital signal in the time domain is switched on the basis of the side information including the information regarding the decoding of the data block.

5. (Amended) The filtering method according to claim 1 ~~any one of claims 1 to 4~~, wherein at the first step, the output data stream is acquired by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and $C^{IV}{}_N$ is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m + \frac{1}{2}\right)\left(n + \frac{1}{2}\right)\pi}{N}\right], \quad 0 \le m, n \le N - 1$$

where N is the number of data contained in x.

8. (Amended) The filtering method according to claim 6 ~~or 7~~, wherein at the first step, the output data stream is acquired by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{II} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and $C^{II}{}_N$ is a DCT-II transformation matrix represented by the following expression,

$$\left[C_N^{II}\right]_{m,n} = \cos\left[\frac{m(2n+1)\pi}{2N}\right], 0 \le m, n \le N-1$$

where N is the number of data contained in x.

11. (Amended) The filtering apparatus according to claim 9 ~~or 10~~, wherein said digital signal output means switches the processing method for generating the digital signal in the time domain on the basis of the side information including the information regarding the decoding of the data block.

13. (Amended) The filtering apparatus according to claim 9 ~~any one of claims 9 to 12~~, wherein said transformation means acquires the output data stream by making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and $C^{IV}{}_N$ is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m+\frac{1}{2}\right)\left(n+\frac{1}{2}\right)\pi}{N}\right], 0 \le m, n \le N-1$$

where N is the number of data contained in x.

16. (Amended) The filtering apparatus according to claim 14 ~~or 15~~, wherein said transformation means acquires the output data stream making the matrixing on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{II} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and C^{II}_N is a DCT-II transformation matrix represented by the following expression,

$$\left[C_N^{II}\right]_{m,n} = \cos\left[\frac{m(2n+1)\pi}{2N}\right], \quad 0 \le m, n \le N-1$$

where N is the number of data contained in x.